UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION

VICTORIA CAREY, individually and on behalf of all others similarly situated, Plaintiff, v. E. I. DU PONT DE NEMOURS AND COMPANY and THE CHEMOURS COMPANY FC, LLC, Defendants.	Case No.: CLASS ACTION COMPLAINT

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GLOSSARY

Defined Term	Definition
CDC	U.S. Centers for Disease Control and Prevention
CFPUA	Cape Fear Public Utility Authority
CFPUA Notice	Notice of intent to sue sent to DuPont by the CFPUA dated August 3, 2017
Chemours	The Chemours Company FC, LLC
Class Period	1980 to Present
Classes	Fed. R. Civ. P. 23(b)(2) class and Fed. R. Civ. P. 23(b)(3) class
Consent Order	Consent order entered into by DuPont and the EPA on January 28, 2009, governing the manufacturing of GenX
Defendants	DuPont and Chemours
DENR	North Carolina Department of Environment and Natural Resources
DEQ	North Carolina Department of Environmental Quality
DHHS	North Carolina Department of Health and Human Services
DuPont	E. I. du Pont de Nemours and Company
DWQ	North Carolina Division of Water Quality
DWR	North Carolina Division of Water Resources
EPA	U.S. Environmental Protection Agency
Fayetteville Works	DuPont's Fayetteville Works industrial facility, located at 22828 NC Highway 87 W, Fayetteville, North Carolina 28306.
Gen-X (C-3 Dimer)	A replacement chemical to be used after the phase-out of PFOAs
GenX Report	A 2014 report entitled: "Evaluation of chronic toxicity and carcinogenicity of ammonium 2,3,3,3-tetrafluoro-2-

	(heptafluoropropoxy)-propanoate in Sprague–Dawley rats"
HAL	Health Advisory Level
Mono-ether PFECAs	Perfluoroalkyl ether carboxylic acids with one ether group
Multi-ether PFECAs	Perfluoroalkyl ether carboxylic acids with multiple ether groups
Non-neoplastic	New growth in tissue that does not serve a useful purpose – *i.e.*, tumors.
NPDES	National Pollutant Discharge Elimination System
NPDES Permit	Fayettesville Works Facility NPDES Permit No. NC0003573
PFASs	Polyfluorinated substances
PFCAs	Perfluorocarboxylic acids
PFOAs	Perfluorooctanoic acids
PFOS	Perfluorooctane sulfonate
PFPrOPrA	Perfluoro-2-propoxypropanoic acid
PFSAs	Perflurosulfonic acids
Plaintiff	Victoria Carey
PPA	Polymer Processing Aid
PPARα agonists	peroxisome proliferators
PVF	Polyvinyl Fluoride
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SWMUs	Solid Waste Management Units

INTRODUCTORY STATEMENT

1. From 1980 to the present (the "Class Period"), Defendants willfully and wantonly, recklessly, and negligently discharged toxic chemicals into the Cape Fear River, all the while concealing their conduct and its dangerous impacts on human health and life. Defendants did so while well aware that these chemicals—polyfluorinated substances (collectively referred to as "PFASs") such as perfluorooctanoic acids ("PFOAs"), perfluorooctane sulfonate ("PFOS"), GenX and Nafion—are highly toxic, dangerous to human health and life, and persistent in the environment. DuPont's own tests and government epidemiological studies provided further evidence that exposure to these chemicals can cause liver disease and liver, testicular, pancreatic, uterine and kidney cancer, as well as birth defects, fetal injuries, low fetal weight, and fetal skeletal deformation. Nevertheless, DuPont continually misled both regulators and the people in and around the Cape Fear River area who drank and bathed in these toxic chemicals every day.

2. The impact on counties that use the Cape Fear River as a primary source of drinking water—New Hanover, Bladen, Brunswick, Cumberland, and Pender Counties in North Carolina—has been devastating and tragic. According to county-level statistics in the multiple cause of death data published by the U.S. Centers for Disease Control and Prevention ("CDC"), Bladen, Brunswick, Pender, and New Hanover Counties have among the highest concentration of liver disease in the United States. According to the central registry of the North Carolina Department of Health and Human Services ("DHHS"): (1) the rate of liver and testicular cancers in New Hanover County is significantly higher than the state average, (2) the rate of kidney cancer in Bladen County is significantly higher than the state average, (3) the rate of pancreatic cancer in Brunswick County is significantly higher than the state average, and (4) the rate of uterine cancer in Cumberland County is significantly higher than the state average. The

prevalence of these diseases is entirely consistent with DuPont's findings that GenX causes liver disease and cancer.

3. There is no "quick fix" for these dire consequences. The chemicals have spread throughout more than 100 miles of the Cape Fear River and tens of thousands of miles of municipal and residential piping, where they have bonded with pipes, microbes, plants, animals, and sediments which will slowly release the chemicals back into the water supply for decades.

4. According to the 2016 U.S. Census, these counties have a combined population of 774,394 individuals who occupy 362,585 housing units. The Cape Fear Public Utility Authority ("CFPUA"), which services a portion of the City of Wilmington, alone has more than 67,000 connections.

5. This is a class action on behalf of thousands of residents and business owners who have experienced, and will continue to experience, serious personal injury, property damage, economic injury, and emotional injury caused by Defendants' conduct. These damages include the loss in value and marketability of properties owned by Plaintiff and Class members, the cost of remediating the properties owned by Plaintiff and Class members, the cost of mitigating the contaminated water, and/or the cost of alternative water sources. Plaintiff's and Class members' damages also include loss of use and enjoyment of the properties they own, annoyance, discomfort and inconvenience. Plaintiff's and Class members' damages also include the cost of diagnostic testing for the early detection of illness, disease, and disease process caused by exposure to Defendants' toxic chemicals. Plaintiff is seeking monetary damages and injunctive relief to address all of these past, present and future injuries to human health and property.

JURISDICTION AND VENUE

6. The Court has diversity jurisdiction under 28 U.S.C. § 1332(d). The matter in controversy in that suit exceeds $75,000, exclusive of interest and costs. This is a class action, moreover, in which Plaintiff is a citizen of the State of North Carolina, and Defendants are citizens of the State of Delaware.

7. The Court has personal jurisdiction over Defendants because each of them has personally availed itself of the benefits and protections of the laws of the State of North Carolina. Each of the Defendants conducted business and committed torts in North Carolina, by itself and its agent and/or *alter ego*, which caused Plaintiff and Class members to suffer severe personal and property injuries in the state.

8. Venue is proper in this Court because the original injury and damage occurred in the Eastern District of North Carolina and Defendants reside or conduct business in the Eastern District of North Carolina. Plaintiff resides in the Eastern District of North Carolina and/or owns property located in the Eastern District of North Carolina that was damaged, and many of the occurrences described herein occurred in the Eastern District of North Carolina.

PARTIES

I. Plaintiff

9. Plaintiff **Victoria Carey**, age 58, has lived in Leland, North Carolina for fifteen years. Ms. Carey lives in a single-family home, located at 8256 Egret Pointe NE, Leland, North Carolina, 28451, which she and her husband have owned since 2012. Since 2002, the Carey family, unaware of the nature and extent of the toxicity of the water that was contaminated as a result of Defendants' conduct, regularly used the water for drinking, cooking, cleaning, washing, bathing and clothes washing, in varying extent and levels, for these different purposes. Testing of water drawn from the Carey family home revealed elevated levels of GenX and Nafion that

exceeded regulatory standards. Ms. Carey has been diagnosed with Thyroid nodules, which were recently biopsied. She has also been diagnosed with an idiopathic immune condition. As a proximate result of Defendants' deliberately indifferent, intentional, reckless, and negligent actions, as set forth herein, Ms. Carey has experienced serious physical and emotional injury as well as injury to property.

II. Defendants

10. Defendant **E. I. du Pont de Nemours and Company** ("DuPont") is a Delaware corporation, with its principal place of business located at 1007 Market Street, Wilmington, Delaware 19898. DuPont is a multinational chemical manufacturer. It owned the Fayetteville Works industrial facility, located at 22828 NC Highway 87 W, Fayetteville, North Carolina 28306 ("Fayetteville Works"), from the early 1970s until February 1, 2015, during which time it disposed of PFASs including PFOS, PFOAs such as GenX and Nafion into the Cape Fear River. DuPont still operates a manufacturing area at Fayetteville Works.

11. Defendant **The Chemours Company FC, LLC** ("Chemours") is a Delaware corporation, with its principal place of business located at 1007 Market Street, Wilmington, Delaware 19898. Chemours is a multinational chemical manufacturer. Chemours, including its assets and liabilities, was wholly owned by DuPont when Chemours acquired Fayetteville Works from DuPont on February 1, 2015. Chemours later separated from DuPont in July 2015. During the time Chemours has owned and operated Fayetteville Works, it has discharged PFASs including PFOAs such as GenX and Nafion into the Cape Fear River.

STATEMENT OF FACTS

I. PFAS, PFOA, PFOS, Nafion, and GenX

12. This case involves a group of synthetic chemical compounds called PFASs, which Defendants manufacture and discharge into the Cape Fear River. PFASs are used in

manufacturing Teflon, including fire resistance and oil, stain, grease and water repellency. These chemical compounds are not found naturally in the environment, but once they are discharged, they are very persistent in the environment and the human body.

13. In particular, Defendants manufacture and discharged the following PFASs: perfluorocarboxyl acids ("PFCAs"), perflurosulfonic acids ("PFSAs") perfluoroalkyl ether carboxylic acids with one ether group ("mono-ether PFECAs") and perfluoroalkyl ether carboxylic acids with multiple ether groups ("multi-ether PFECAs"), including PFOAs, PFOS, and Perfluoro-2-propoxypropanoic acid ("PFPrOPrA"), and Nafion wastes. In addition, Defendants generate GenX as a waste when they manufacture vinyl ethers. Defendants also manufacture and dispose of Nafion which is in the membranes of fuel cells, and dispose of its waste. For ease of reference, this Complaint refers to all of these chemicals collectively as "PFASs." Exposure to PFASs alone or in combination can cause a variety of significant morbidity and mortality.

14. Until about 2000, most manufacturers including DuPont predominantly used what are called "long-chain PFASs" for manufacturing and other industrial processes. But long-chain PFASs, so-called because they are composed of six or more carbon atoms, received increasing scrutiny from regulators and the public because of accumulating evidence about the ecological persistence and human health effects associated with long-chain PFAS exposure. Recently, the U.S. Environmental Protection Agency ("EPA") established a lifetime health advisory level ("HAL") of 70 ng/L (parts per trillion or "ppt") for the sum of the PFOA and PFOS concentrations in drinking water. The State of North Carolina has adopted a health-based standard of 140 ppt.

15. DuPont shifted to use GenX and other PFASs in the manufacturing of Teflon as a

reaction to mounting pressure, lawsuits, and regulatory fines resulting from its discharge of long-chain PFASs. However, as set forth below, Defendants have known for years that GenX and other PFOAs share many damaging and deadly characteristics of the chemical compounds that they replaced. They are persistent in the environment, bioaccumulative and toxic in wildlife and humans, and have been shown to cause reproductive, developmental, and systemic health effects in laboratory tests.

II. Defendants Have Been Discharging GenX and Other PFOAs and PFASs Into the Cape Fear River for Decades

16. DuPont has operated the 200-acre Fayetteville Works facility since the early 1970s. For years, Fayetteville Works has had five discrete manufacturing areas: (i) fluoromonomers/Nafion; (ii) polymer processing aid ("PPA"); (iii) Butacite; (iv) SentryGlas; and (v) polyvinyl fluoride ("PVF"). The wastewater from each of the manufacturing areas flows through an on-site wastewater treatment plant, and is ultimately discharged into the Cape Fear River. Fayetteville Works is operating under National Pollutant Discharge Elimination System ("NPDES") Permit No. NC0003573 (the "NPDES Permit"), the most recent version of which was issued to DuPont's subsidiary and successor, Chemours, for the point source discharge from the entire Fayetteville Works facility.

17. Through this wastewater discharge, Defendants have been purposefully discharging PFASs into the Cape Fear River for more than forty years.

18. DuPont has been discharging GenX specifically from Fayetteville Works since at least 1980 as a waste of its vinyl ether manufacturing process. And DuPont began discharging additional GenX in 2009 when, in response to concerns about the toxicity and persistence in the environment and human body of PFOAs, DuPont identified GenX as a viable replacement for PFOAs in its Teflon manufacturing process.

19. In addition to Defendants' wastewater discharge, Defendants have further polluted the Cape Fear River and the surrounding communities through contamination at Fayetteville Works. During the time that DuPont used PFOAs at Fayetteville Works, the site became contaminated with PFASs in the soil and groundwater, due, according to an August 3, 2017 notice of intent to sue sent to DuPont by CFPUA (the "CFPUA Notice"), to some combination of spills, leaks, releases, discharges, and air emissions. A series of internal DuPont investigations demonstrate that DuPont was well aware that the contaminated soil and groundwater was leaking into groundwater and the river. A Phase I Resource Conservation and Recovery Act ("RCRA") Facility Investigation ("RFI"), dated April 14, 2003 and revised August 1, 2003, a Phase II RFI dated June 2006, and its August 2009 Addendum include additional findings regarding historical contamination and releases at Fayetteville Works. Among other things, the RFIs: (i) identify PFOA contamination in soil and groundwater throughout Fayetteville Works, and posit that some of the contamination is due to deposition of PFOA air emissions; (ii) indicate that until 1990, unlined lagoons constructed in or around 1979 were used as biosludge settlement lagoons for wastewater from throughout the facility, before discharging to the Cape Fear River; and (iii) acknowledge historical releases at the Nafion manufacturing area, including from solid waste management units ("SWMUs") handling Nafion wastewater.

20. DuPont conducted a subsequent RFI, which led to the issuance of a Phase III RFI Report dated February 2014 and revised in August 2014. According to the 2014 RFI Report, at least seven releases of PFOA occurred between March 2011 and February 2013, including a release from the PPA facility in June 2011, a release from the Nafion facility in March 2012, and a release from the Waste Fluorocarbon Storage Tank in March 2012. DuPont was manufacturing

or otherwise producing GenX during each of those releases, which suggests that GenX was a contaminant in one or more of the releases.

III. Defendants Have Concealed and Misrepresented Information to Regulators and the Public in Order to Continue Polluting the Cape Fear River

21. While Defendants were discharging toxic chemicals into the Cape Fear River and the water supply, they were concealing and misrepresenting information both about the nature and extent of Defendants' chemical discharge and the health impacts of exposure to GenX and other PFASs either individually or in combination.

A. Defendants Misled Regulators and the Public About the Chemicals Defendants Were Discharging From Fayetteville Works

22. In or about December 1995, DuPont submitted to North Carolina Department of Environment and Natural Resources ("DENR," now the Department of Environmental Quality, "DEQ"), as part of its NPDES Permit renewal application, a request to reroute Nafion wastewater to bypass the facility's wastewater treatment plant. DuPont falsely indicated in its permit application that the only significant pollutant in the "low biodegradable" wastewater was fluoride. However, the wastewater also included GenX and other PFASs.

23. On May 3, 2001, DuPont submitted a renewal application for its 1996 NPDES Permit in which the company disclosed its intent to begin manufacturing PFOA at Fayetteville Works. DuPont had previously been purchasing PFOA from a company called 3M, but 3M stopped manufacturing the substance due to concerns over its persistence, bioaccumulation and toxicity. According to the CFPUA Notice, by the time of its 2001 NPDES Permit renewal application:

a. DuPont had been conducting medical studies on PFOAs for decades. DuPont already "understood that PFOA caused cancerous testicular, pancreatic, and liver tumors in lab animals. One laboratory study suggested possible DNA damage from PFOA exposure, and a study of workers linked exposure with prostate cancer." Nathaniel Rich, *The*

Lawyer Who Became DuPont's Worst Nightmare, The NY Times Magazine, Jan. 6, 2016.

b. DuPont had been the defendant in a federal lawsuit over adverse health effects arising from PFOA contamination from its facility in Parkersburg, West Virginia, and a class action regarding adverse health effects was filed against the company in August 2001.

24. Nonetheless, according to the CFPUA Notice, DuPont in its 2001 NPDES Permit renewal application failed to disclose any of the studies or health data on PFOA in its possession. Instead, DuPont represented to DEQ's Division of Water Quality ("DWQ," now Division of Water Resources, "DWR") that: (i) based on "medical surveillance of its own employees and epidemiological data from others in the industry," PFOA "does not pose a health concern to humans or animals at levels present in the workplace or environment"; (ii) DuPont had used PFOA for forty years "with no observed health effects in workers"; and (iii) the compound "is neither a known developmental toxin nor a known human carcinogen." The 2001 NPDES Permit renewal application requested authorization to discharge the PFOA wastewater directly to a dedicated outfall, bypassing the facility's wastewater treatment plant. The renewal NPDES Permit was finally issues in January 2004. Because later submissions from DuPont represented that the PFOA manufacturing operation was constructed to have no process wastewater discharges, however, and that the wastewater would be captured and incinerated off site, the 2004 NPDES Permit did not include authorization for discharge of the PFOA manufacturing wastewater. According to the CFPUA Notice, the wastewater from PFOA manufacturing included GenX.

25. DuPont submitted its next NPDES Permit renewal application on May 1, 2006. As to the manufacture of PFOA, DuPont represented in its application that: (i) the wastewater "is collected and shipped off-site for disposal"; (ii) "[n]o process wastewater from this

manufacturing facility is discharged to the site's biological [wastewater treatment plant] or to the Cape Fear River"; and (iii) the PFOA produced at the facility "is used to produce fluoropolymers and fluorinated telomers, but none of the produced PFOA is used at the Fayetteville Works site." As to the Nafion manufacturing operations, DuPont disclosed in its application that the plant manufactures five final products, including FLPR Vinyl Ether monomers and HFPO monomers (hexafluoropropylene oxide). According to DuPont, the Vinyl Ether and HFPO monomers were shipped to other DuPont locations to produce various fluorochemical products such as Teflon, and the Nafion wastewater was treated in the facility's wastewater treatment plant. The renewal NPDES Permit was issued on May 25, 2007.

26. In 2009, amid concerns over DuPont's use and discharge of PFOAs, DuPont and the EPA reached a consent order pursuant to the Toxic Substances Control Act ("Consent Order"). In reaching the Consent Order, DuPont identified GenX as a replacement for PFOAs in its manufacture of Teflon products. The Consent Order was designed to allow the manufacture of GenX under a tightly controlled work environment.

27. DuPont obtained the Consent Order by making false statements to the EPA. DuPont claimed to the EPA that GenX did not have the same dangers associated with PFOAs. Because GenX is comprised of two four-length carbon-fluoride chains joined by an oxygen atom, DuPont claimed that the GenX molecule would break into two parts, at the oxygen molecule, and leave the body more quickly than PFOAs. What DuPont did not disclose to the EPA was that it had been discharging GenX into the Cape Fear River for more than 30 years without meeting the standards set forth in the Consent Order, and any alleged short-term residency of GenX in the body was more than offset by the fact that Plaintiff and Class members had been continuously exposed for more than three decades. Thus, the use of GenX as a

replacement for PFOAs provided no additional margin of safety. And DuPont falsely stated that "the Company currently collects the waste containing [GenX] and sends the waste to an off-site RCRA incinerator," when in fact the company was discharging GenX into the Cape Fear River.

28. The Consent Order made clear the significant health risks posed by DuPont's noncompliance. The Consent Order required DuPont to assure that workers handling GenX wear gloves and respirators at all times, and in the absence of gloves and respirators, "a sampling and analytical method must be developed by the Company, verified by an independent third-party laboratory, and submitted to EPA." The Consent Order noted that "EPA has concerns that [GenX] will persist in the environment, could bioaccumulate, and be toxic ('PBT') to people, wild mammals, and birds," and that, based on available data, "EPA has human health concerns" for GenX. The EPA noted that "[s]ome [], PFOA, and PFOS are expected to persist for years in the environment. Biodegradation and photolysis tests of some analogous substances indicate little or no biodegradation or photolysis of perfluoroalkyl compounds. … Toxicity studies on the analogs PFOA and PFOS indicate developmental, reproductive and systemic toxicity in various species. Cancer may also be of concern. These factors, taken together, raise concerns for potential adverse chronic effects in humans and wildlife." Due to the likelihood that GenX would be used as a substitute for PFOA, EPA determined that "more information is needed on the toxicity and pharmacokinetics" of GenX, and noted the "high concern for possible environmental effects over the long-term." Accordingly, the EPA concluded that "uncontrolled manufacture, import, processing, distribution in commerce, use, and disposal of [GenX] may present an unreasonable risk of injury to human health and the environment."

29. Due to the stated concerns of the EPA, the Consent Order authorized the manufacture of GenX but required that DuPont "recover and capture (destroy) or recycle [GenX]

from all the process wastewater effluent streams and air emissions (point source and fugitive) at an overall efficiency of 99% and distribute only to those customers that achieve this percentage of efficiency or destruction."

30. As part of its NPDES permit renewal process, DuPont representatives, including its environmental manager Michael Johnson, met in August 2010 with DWQ to discuss the phase-out of PFOA. A state regulator's handwritten notes of the meeting called the new material "Gen-X (C-3 Dimer)" and added that the company would dispose of the new material "offsite by incinerator." In fact, DuPont continued discharging GenX and other PFASs into the Cape Fear River without notifying the EPA, area residents, drinking water providers, or state and local officials.

31. On April 29, 2011, DuPont submitted another NPDES Permit renewal application. According to the CFPUA Notice, DuPont had begun transitioning from PFOA to GenX by that time. Where its disclosures previously identified the manufacture of PFOA, DuPont instead identified the manufacturing area as a "PPA manufacturing area." DuPont represented in its application that: (i) the "processing aids produced in this unit are used to produce fluoropolymers and fluorinated telomers, but none of the produced processing aids are used at the Fayetteville Works site"; (ii) "[a]ll process wastewater generated from this manufacturing facility is collected and shipped off-site for disposal"; and (iii) "[n]o process wastewater from this manufacturing facility is discharged to the site's biological [wastewater treatment plant] or to the Cape Fear River." DuPont's representations regarding the Nafion plant were essentially identical to those in its May 2006 NPDES application. The effluent from the Nafion wastewater was represented as being heavily diluted with noncontact river water and

other water prior to discharge. The NPDES Permit renewal was issued February 6, 2012, and did not authorize discharge of GenX and other PFASs.

32. On June 19, 2015, DuPont submitted an ownership change request, notifying DWR of the pending transfer of Fayetteville Works to Chemours and requesting a permit amendment. On June 24, 2015, Michael Johnson, now Chemours' environmental manager, met with DWQ regulators to discuss the identification of a new perfluorinated compound in the Cape Fear River. Handwritten notes by a state regulator show that meeting attendees were told the compound, a PFOA replacement equivalent to "C3 Dimer Acid/Salt" or "HFPO Dimer Acid Ammonium Salt," were "no longer discharged to river." Both of those compound names are technical references to GenX. The 2012 NPDES Permit was amended to reflect the change of ownership effective on July 1, 2015.

33. Effective July 1, 2015, DuPont spun off Chemours and Chemours began operating Fayetteville Works.

34. Chemours submitted its most recent NPDES Permit renewal application on April 27, 2016. The application contained similar representations regarding the PPA and Nafion manufacturing areas as the April 2011 renewal application. Similar to the prior application, DuPont represented that it heavily diluted the effluent from the Nafion wastewater with noncontact river water and other water prior to discharge.

B. Defendants Misled Regulators and the Public About the Negative Health Impacts of GenX

35. Pursuant to the 2009 Consent Order between DuPont and the EPA, DuPont was required to conduct a series of tests on GenX. The tests demonstrated significant health and environmental dangers associated with GenX, and yet DuPont concealed, misrepresented, and

downplayed these dangers, all while continuing to discharge toxic chemicals into the Cape Fear River.

36. On July 15, 2010, pursuant to the Consent Order, DuPont submitted a letter report to the EPA summarizing the results of studies of the impacts of GenX on both fetal and adult laboratory rats. The study found a direct correlation between the dosage of GenX and early deliveries, fetal weight, and skeletal deformations:

> There was a dose-related increase in the number of dams [female mice] found with **early deliveries** on GD 21.
>
> In addition, mean fetal weight was **8 and 28% lower** (statistically significant) than controls at 100 and 1000 mg/kg/day, respectively.
>
> A higher mean litter proportion of 14th rudimentary ribs was observed in the 1000 mg/kg/day group, resulting in a higher mean litter proportion of **total skeletal variations and total developmental variations**. . ..

37. As for the maternal laboratory rats, the study found that:

> **Focal necrosis [small areas of dead tissue such as cysts]** of the liver was noted in some females in the 100 and 1000 mg/kg/day groups in a dose-related manner.

38. On July 20, 2010, pursuant to the Consent Order, DuPont submitted a report to the EPA on a further rodent study which found numerous instances of cellular deformation indicative of liver disease and early-stage cancer. Pathological findings included focal necrosis, which are small areas of dead liver cells undergoing disintegration, and an increase of peroxisome proliferators which have been shown to cause liver disease and induce tumors in livers.

39. To address these adverse findings, DuPont performed a follow-up study which it reported to the EPA on January 28, 2011. The results differed little from the July 20, 2010 letter report and portended the results of a far more detailed analysis in 2014:

> Hepatocellular hypertrophy was characterized by cytoplasmic eosinophilic stippling that is consistent with **peroxisome proliferation**. In the 5 mg/kg/day F0 males and females, other **liver lesions** included increases in single cell **necrosis**, **mitotic figures**, lipofuscin pigment, and **focal necrosis** (females only).

Increases in mitotic figures indicate that a cell population is proliferating and is used as an index of tumor aggression.

40. On January 8, 2013, DuPont completed another study. The results further confirmed the dangerous health effects of exposure to GenX:

> Under the conditions of this study, the no-observed-adverse-effect level (NOAEL) was considered to be 1 mg/kg/day in male and female rats. Test substance-related **neoplastic changes** were observed at the high dose (500 mg/kg/day in females; 50 mg/kg/day in males) and included **hepatocellular tumors** in females and, in males, equivocal **increases in pancreatic acinar cell tumors and testicular interstitial cell tumors.**

But DuPont dismissed the results as not being relevant to human health:

> Based on the high dose threshold for these tumor responses in this study, the lack of genotoxicity of the test material across a battery of in vitro and in vivo tests, and the known responses of the rat versus other species, including humans, to these PPAR(a) associated tumor responses, these tumor findings are not considered relevant for human risk assessment.

41. The January 2013 study also found uterine polyps, which is a potential indicator of uterine cancer, but dismissed the results on statistical grounds. DuPont did not, however, provide a basis for selecting the statistical tests or any evidence that it had run the tests, or the results of the tests. DuPont swept its own dire findings under the rug, while citing no authority and conducting no tests supporting these broad dismissals. Moreover, DuPont failed to acknowledge the large body of science that is contrary to DuPont's purported conclusion that its rodent studies are irrelevant to human health.

42. In 2014, DuPont scientists conducted yet another evaluation of the toxic effects of GenX, "Evaluation of chronic toxicity and carcinogenicity of ammonium 2,3,3,3-tetrafluoro-2-

(heptafluoropropoxy)-propanoate in Sprague–Dawley rats" ("GenX Report"). This study was designed to be far more detailed than the last half dozen studies, and was presumably designed to put to bed any lingering doubts about the carcinogenicity of GenX. But the opposite occurred. The GenX Report found "[i]ncreases in enzymes indicative of **liver injury**. . ." It also found a gradual deterioration of specific tissues, cells, and organs with a corresponding impairment of function, and small areas of dead liver tissue. Blood sampling analysis and results also found that the rats were in a diseased state.

43. Tumors were also discovered in the rats:

> At the interim necropsy, **non-neoplastic** test substance-associated effects were present in the liver of males at 50 mg/kg and in the liver and kidneys of females at 500 mg/kg.

44. "Non-neoplastic" refers to new growth in tissue that does not serve a useful purpose – *i.e.*, tumors. Neoplasms may be malignant or benign; some benign tumors may progress to malignancy. The report later indicated that these tumors were indeed carcinogenic. DuPont also found the livers to be enlarged, lesions and dying cells—all indicators of liver disease.

45. DuPont also found cells in the early stages of kidney cancer:

> Kidney changes in females at 500 mg/kg included tubular dilation, edema of the renal papilla, **transitional cell hyperplasia in the renal pelvis**, tubular mineralization, **renal papillary necrosis** and CPN. Tubular dilation frequently occurred in an ascending pattern extending from the papilla to the outer cortex, while at other times it was present only in the papilla. **Edema of the papilla** was characterized by increased rarefaction or myxomatous change in the papillary interstitium, sometimes with polypoid protrusions from the lateral surface of the papilla. The **edema** and tubular dilation were often associated with hyperplasia of the transitional cell epithelium lining the papilla and pelvis. Small foci of tubular mineralization were often present and, in some animals, necrosis of the tip of the papilla was present.

Transitional cell hyperplasia in the kidney is often an initial stage in the development of cancer.

46. The report also found that, in addition to tumors in the liver, tumors were also found in the kidney, stomach, and tongues of females:

> In addition, in female rats given 500 mg/kg, statistically significant increases in **hyperplasia** of squamous epithelium were observed in the nonglandular stomach (limiting ridge only) and tongue (in association with subacute/chronic inflammation in the tongue).

Hyperplasia is the enlargement of an organ or tissue caused by an increase in the reproduction rate of its cells, often as an initial stage in the development of cancer.

47. DuPont ultimately concluded that the lesions in the liver were carcinomas – that GenX caused liver disease and cancer in the livers of females and males:

> Compound-related neoplastic changes occurred in the livers of females administered 500 mg/kg and included **increased incidences of hepatocellular adenoma and carcinoma.** These tumors occurred in association with the degenerative and necrotic liver lesions observed at this dose as described above. Hepatocellular tumors and test substance-associated degenerative and necrotic lesions were not observed in females at lower doses and **the incidences of hepatocellular tumors were similar in all male groups.**

48. The report also found that in males, GenX causes pancreatic cancer, but then attempted to minimize the impact of its findings:

> In males administered 50 mg/kg, **a statistically significant increase in the combined incidence of pancreatic acinar cell adenomas and carcinomas was seen,** but neither the incidence of adenoma or carcinoma alone was statistically increased, although the incidence of carcinomas (2.9%) was slightly outside the historical range of 0–1.7%.

49. DuPont's study also found evidence of testicular cancer, but again tried to minimize its significance:

> The incidence of **Leydig cell adenomas** (11.4%) was increased above historical control ranges for this tumor (0–8.3%) in males administered 50 mg/kg, although this increase was not statically significant compared to controls. In addition, a Leydig cell adenoma was present in 1 male at the interim necropsy in the 50 mg/kg group. The incidence of Leydig cell hyperplasia was also increased above historical control range in this group at terminal sacrifice (also 0–8.3%; although again, this incidence was not statistically significant versus controls. However, comparison to within-study controls was complicated by the

> fact that controls had a relatively high incidence of Leydig cell hyperplasia (10%). Based on the above considerations and the known activity of PPARα agonists to produce Leydig cell hyperplasia and adenomas in rats, the relationship to the test compound for **these lesions was considered equivocal in this study.**

Leydig cell tumors are usually benign, but approximately 10% are malignant. As with germ cell tumors, they spread throughout the lymphatic system. However, unlike germ cell tumors, Leydig cell tumors show relative lack of sensitivity to radiotherapy and chemotherapy agents.

50. DuPont likewise tried to minimize its finding on pancreatic cancer and Leydig cell tumors by claiming that "less robust" evidence "suggests" that the results were "likely" not relevant to humans:

> While there is less definitive mechanistic data on the role PPARα plays in the induction of pancreatic acinar cell tumors in rats, the available data involving altered bile flow and increased cholecystokinin *suggests* that this mode of action is also *likely* to be non-relevant for humans. While *less robust*, research considering comparative biology and mechanism of action of Leydig cell tumor induction in rodents by a wide variety of chemical classes *suggests* these tumors most *likely* have low relevance to humans.

51. DuPont's GenX report ultimately concluded: "The test chemical belongs to a class of compounds known as peroxisome proliferators (PPARα agonists) which are known to produce liver, pancreatic, and testicular tumors in rats and liver tumors in mice." However, faced with its findings that GenX is carcinogenic, DuPont concluded, without any epidemiological study on rodents impregnated with human proteins, that "these compounds have not been shown to be carcinogenic in other species including humans. Based on the extensive research into the comparative biology of peroxisome proliferator-induced hepatic carcinogenesis, the induction of liver tumors in rodents by non-genotoxic peroxisome proliferators (this compound was shown to be inactive in a battery of genotoxicity assays) is not considered relevant to humans."

52. DuPont never tested for the synergetic impact of GenX and other PFASs.

53. DuPont wrongly dismissed all of these results as not being relevant to human health. DuPont claimed that the observed increase in cancer in rodents exposed to GenX was irrelevant based on the single argument that the PPAR mode of action in rodents is irrelevant to human cancers. But DuPont ignored the fact that the PPAR mode of action only applies to liver cancer and not to pancreatic and testicular cancer. Moreover, it was DuPont who selected the rodents for the cancer study, and DuPont ignored the fact that there are rodents with modified signaling that are more conducive to determining the test's applicability to humans. Scientific studies by independent researchers have found carcinogenic impacts from PFOA exposure to these modified rodents. DuPont also concluded that the high doses used in the rodent studies were not representative of human exposures. This argument is not only scientifically untrue but defies common sense for several reasons. *First*, all two-year cancer rodent studies follow the protocol developed by the U.S. National Toxicology Program, which requires dosing rodents at elevated dose. This requirement is necessary to increase the probability of detecting cancers in humans. Further, humans in many instances are even more susceptible to cancer and other pathologies than laboratory rodents. Moreover, it has been well-established that when exposures to carcinogens occur during the early-life stage, critical exposure carries a much greater risk of developing cancer. The EPA requires a factor of 10 to be applied to calculating risk for these early life exposures. Finally, DuPont's claim that rodent cancers only occur at high doses and are therefore irrelevant to human exposures is absurd from a common-sense standpoint—EPA required DuPont to conduct the studies on rodents because they were relevant to determining health impacts of GenX exposure to humans. Nevertheless, DuPont dismissed its toxicology results as not being relevant to human health, and DuPont neglected to notify area residents,

drinking water providers, or state and local officials of the significant dangers posed by the polluted water supply.

54. In 2012, a series of studies further demonstrated the negative health impacts of exposure to PFOA and PFOS. Tests showed immunotoxic effects in a variety of species and models. Additionally, the C8 Health Project, which was created as part of the settlement of another lawsuit against DuPont, found a significant positive exposure-response relationship between PFOA and kidney cancer.

55. A 2013 population-based case-control analysis supported the association between PFOA exposure and both kidney and testicular cancer and suggested an association with prostate and ovarian cancer and non-Hodgkin lymphoma.

56. Despite all of this scientific evidence that DuPont's secret dumping of GenX into the Cape Fear River posed serious health consequences for the hundreds of thousands of people who depended on the river for their water supply, DuPont continued to conceal its actions and failed to warn regulators or the public.

57. As noted above, DuPont developed GenX primarily because it was thought to be more biodegradable than PFOAs, which had spawned extensive litigation. DuPont's logic was that GenX would pass through the body more quickly, and thus cause less damage than PFOAs.

58. According to DuPont's own March 15, 2010 report, however, written pursuant to Consent Order, GenX is not inherently biodegradable. The purpose of this test was to evaluate the inherent biodegradability of the test substance via a 28-day test. The test was designed to meet the requirements of SEPA HJIT 153-2004, "the guidelines for the testing of chemicals," OECD Procedure 302C, "Inherent Biodegradability: Modified MITI Test (II)," adopted May 1981. The report concluded that: ". . . Based on the residue analysis, **the biodegradation of the**

test substance was 0% and there was hardly any change for the test substance in the 'abiotic' vessel during the testing period. The BOD results showed that **biodegradation of the test substance was both <1% after 14 and 28 days.** The test was valid because the level of biodegradation of the reference substance aniline exceeded 40% after 7 days, and 65% after 14 days. Therefore, the test substance was not inherently biodegradable under this test condition." In other words, DuPont's own test found that GenX was not biodegradable, that is, it was not capable of being broken down (decomposed) rapidly by the action of microorganisms. The implications for Plaintiff and Class members, who depend on the Cape Fear River for their water supply, was that their exposures would be long-lasting.

59. DuPont's results were consistent with those of other researchers, which have found that GenX is not only not biodegradable, but that it bonds with protein in the cells of living organisms and adheres to sediment, scale and pipes, and then reenters the water supply. These living cells include biofilms that cling to pipes and water heaters. Moreover, there is no method that is known with any degree of certainly that will remove the biofilms from the water heaters and plumbing in homes.

IV. Defendants' Toxic Discharges Come to Light

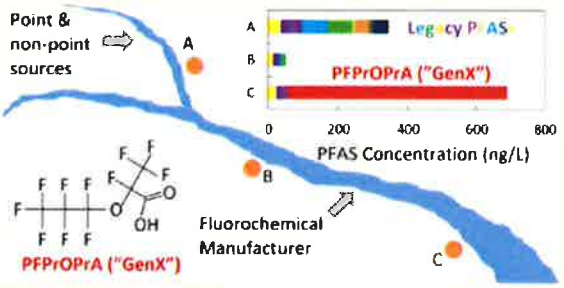
60. On May 3, 2016, North Carolina State University Professor Detlef Knappe shared initial findings of an ongoing research paper on perfluorinated compounds with CFPUA. The findings showed that GenX and other PFASs were detected at an average concentration of 631 ppt at the CFPUA intake.

61. On November 10, 2016, Dr. Knappe, together with co-authors at the University of North Carolina at Charlotte and several government agencies, published his paper showing elevated levels of GenX, and numerous PFOAs and PFASs, in sampling near a drinking water

treatment plant along the Cape Fear River near Wilmington. The study concluded that GenX "presents a greater drinking water challenge" than the older industrial compounds such as PFOAs that it was meant to replace because it is harder to remove from the water.

62. On November 23, 2016, Dr. Knappe shared his published research by email with a number of city and county water treatment plants and government officials in DEQ, including current DWR Director Jay Zimmerman and then-Assistant Secretary of the Environment Tom Reeder. Knappe noted that his study showed levels of GenX "were very high in Wilmington" and that none of the newly discovered compounds being discharged by the Chemours plant were being removed by the city's Sweeney treatment plant. The study found GenX at 631 ppt in finished, *i.e.*, treated, water at the CFPUA water treatment plant in Wilmington. The abstract for the study is as follows:

ABSTRACT: Long-chain per- and polyfluoroalkyl substances (PFASs) are being replaced by short-chain PFASs and fluorinated alternatives. For ten legacy PFASs and seven recently discovered perfluoroalkyl ether carboxylic acids (PFECAs), we report (1) their occurrence in the Cape Fear River (CFR) watershed, (2) their fate in water treatment processes, and (3) their adsorbability on powdered activated carbon (PAC). In the headwater region of the CFR basin, PFECAs were not detected in raw water of a drinking water treatment plant (DWTP), but concentrations of legacy PFASs were high. The U.S. Environmental Protection Agency's lifetime health advisory level (70 ng/L) for perfluorooctanesulfonic acid and perfluorooctanoic acid (PFOA) was exceeded on 57 of 127 sampling days. In raw water of a DWTP downstream of a PFAS manufacturer, the mean concentration of perfluoro-2-propoxypropanoic acid (PFPrOPrA), a replacement for PFOA, was 631 ng/L (n = 37). Six other PFECAs were detected, with three exhibiting chromatographic peak areas up to 15 times that of PFPrOPrA. At this DWTP, PFECA removal by coagulation, ozonation, biofiltration, and disinfection was negligible. The adsorbability of PFASs on PAC increased with increasing chain length. Replacing one CF_2 group with an ether oxygen decreased the affinity of PFASs for PAC, while replacing additional CF_2 groups did not lead to further affinity changes.



63. The full list of chemicals found in the Cape Fear River includes the following:

Table S1. Perfluoroalkyl substances (PFASs) detected in the Cape Fear River (CFR) watershed

Compound	Molecular weight	Formula	CAS #	# of perfluorinated carbons	Chain length (including all C, O and S)
Perfluorocarboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	214.0	$C_4HF_7O_2$	375-22-1	3	4
Perfluoropentanoic acid (PFPeA)	264.0	$C_5HF_9O_2$	2706-90-3	4	5
Perfluorohexanoic acid (PFHxA)	314.1	$C_6HF_{11}O_2$	307-24-4	5	6
Perfluoroheptanoic acid (PFHpA)	364.1	$C_7HF_{13}O_2$	375-85-9	6	7
Perfluorooctanoic acid (PFOA)	414.1	$C_8HF_{15}O_2$	335-67-1	7	8
Perfluorononanoic acid (PFNA)	464.1	$C_9HF_{17}O_2$	375-95-1	8	9
Perfluorodecanoic acid (PFDA)	514.1	$C_{10}HF_{19}O_2$	335-76-2	9	10
Perfluorosulfonic acids (PFSAs)					
Perfluorobutane sulfonic acid (PFBS)	300.1	$C_4HF_9SO_3$	375-73-5	4	5
Perfluorohexane sulfonic acid (PFHxS)	400.1	$C_6HF_{13}SO_3$	355-46-4	6	7
Perfluorooctane sulfonic acid (PFOS)	500.1	$C_8HF_{17}SO_3$	1763-23-1	8	9
Perfluoroalkyl ether carboxylic acids with one ether group (mono-ether PFECAs)					
Perfluoro-2-methoxyacetic acid (PFMOAA)	180.0	$C_3HF_5O_3$	674-13-5	2	4
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	230.0	$C_4HF_7O_3$	377-73-1	3	5
Perfluoro-4-methoxybutanoic acid (PFMOBA)	280.0	$C_5HF_9O_3$	863090-89-5	4	6
Perfluoro-2-propoxypropanoic acid (PFPrOPrA)	330.1	$C_6HF_{11}O_3$	13252-13-6	5	7
Perfluoroalkyl ether carboxylic acids with multiple ether group (multi-ether PFECAs)					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	246.0	$C_4HF_7O_4$	39492-88-1	3	6
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	312.0	$C_5HF_9O_5$	39492-89-2	4	8
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	378.1	$C_6HF_{11}O_6$	39492-90-5	5	10

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64. On June 7, 2017, the executive committee of CFPUA approved a letter to DEQ asking for help evaluating GenX.

65. On June 12, 2017, after substantial media coverage regarding the presence of GenX in the Cape Fear River, Chemours informed DEQ in a meeting that for several decades, GenX and other PFASs had been produced as wastes at Fayetteville Works and routinely discharged into the Cape Fear River.

66. On June 14, 2017, DEQ and DHHS began an investigation into GenX in the Cape Fear River.

67. On June 19, 2017, DEQ regulators in Fayetteville and Wilmington began sampling and testing 13 locations along the Cape Fear River for the presence of GenX. Chemours agreed to pay for the tests. Finished water from four water treatment plants had GenX

concentrations exceeding 140 ppt, including a) Bladen Bluffs (790 ppt); b) NW Brunswick (910 and 695 ppt); c) Pender County (421 ppt); and d) CFPU Sweeney (1100 and 726 ppt).

Gen X Concentration in Finished Water						
Location	06/22/2017 results ppt		06/29/2017 results ppt		07/06/2017 results ppt	
	Test America, CO	EPA RTP, NC	Test America, CO	EPA RTP, NC	Test America	EPA RTP, NC
International Paper Finished	690	523	140	111	N/A	80
NW Brunswick Water Treatment Plant (WTP) Finished	910	695	51	52	N/A	125
Pender Co. 421 WTP Finished	340	269	160	112	N/A	68
CFPUA Sweeney Finished	1100	726	110	100	N/A	87

Gen X Concentration in Finished Water		
Location	06/19/2017 results ppt	06/26/2017 results ppt
	Test America, CO	Test America, CO
Bladen Bluffs Finished	790	76

68. On June 20, 2017, under extreme public pressure, Chemours announced it would "capture, remove and safely dispose of" wastewater that contains GenX, instead of discharging it into the Cape Fear River.

69. Later the same month, the State of North Carolina set a health-based standard for GenX of 140 ppt. Notably, the 140 ppt standard does not take into account GenX's carcinogenicity. "Although the preliminary assessment was based upon a study with combined cancer and non-cancer endpoints, the updated health goal considers non-cancer endpoints only." Nor does it represent a safe level in light of the most sensitive toxic endpoint for other PFAs which is the immune system of infants. If immunotoxicity and cancer risks were taken into account, the health-based standard would be even more stringent.

70. In a *Star News* reporter's notes from a June 15, 2017 closed meeting between Chemours and local officials, the Chemours plant manager was pressed on the amount of GenX

that was likely discharged to the river. The Chemours plant manager attempted to evade questions but ultimately implied that 2.2 lbs. of GenX per day was discharged to the Cape Fear River for six months per year from 1980 to 2013 (when the company agreed to treat the effluent reducing it by 80%), and then 0.44 lbs. per day for 6 months per year from 2013 to June 2017.

71. On June 23, 2017, sampling of bottom sludge collected from a water heater at Plaintiff's residence in Brunswick County, North Carolina detected GenX at 857 ppt in the top layer of sludge and 623 ppt in the bottom layer of sludge.

72. On July 10, 2017, DEQ began receiving the first responses from the Colorado lab that was testing water samples for GenX. The studies in June and July 2017 found raw water concentrations of GenX as high as 39,000 ppt, and water treated by CFPUA with concentrations of 790 ppt.

73. On August 31, 2017, the EPA revealed that it had discovered two other chemicals in the Cape Fear River that are wastes of the Nafion production process, which it referred to as Nafion byproduct 1 and Nafion byproduct 2. The concentrations of these Nafion byproducts is as follows:

Date	Nafion Byproduct 1 (ppt)	Nafion Byproduct 2 (ppt)
Week 1	53	1640
Week 2	143	4320
Week 3	N/A	N/A
Week 4	120	2360
Week 5	158	7860
Week 6	72	4670

These concentrations are as high as 60 times greater than the PFOA health-based standard of 70

ppt set by EPA.

74. On September 5, 2017, DWR filed a Notice of Intent to Suspend Chemours' NPDES Permit within 60 days. DWR claimed that it had a right to suspend because of Chemours' "misrepresentation [and] failure to disclose fully all relevant facts." DWR also explained that it:

> found no evidence in the permit indicating that Chemours or DuPont (Chemours's predecessor) disclosed the discharge to surface water of GenX compounds at the Fayetteville Works. In particular, the NPDES permit renewal applications submitted to DWR contained no reference to "GenX" or to any chemical name, formula, or CAS number that would identify any GenX compounds in the discharge. In fact, the information provided by DuPont and Chemours led DWR staff to reasonably believe that no discharge of GenX had occurred.

The notice also stated that on August 26, 2010, representatives of DuPont met with DEQ representatives and "indicated that the GenX compounds would be produced in a closed-loop system that would not result in the discharge of those compounds into the Cape Fear River. DEQ has found no evidence of DuPont notifying DEQ of an actual discharge of GenX compounds at this meeting or in any information provided to DEQ subsequently by either DuPont or Chemours. Further, DuPont and Chemours did not provide to DEQ any health studies related to the GenX compounds." Finally, the notice also said that "On June 12, 2017, after substantial media coverage regarding the presence of GenX in the Cape Fear River, Chemours informed DEQ in a meeting that for several decades, GenX compounds had been produced as byproducts at the Fayetteville Works, and GenX had been routinely discharged into the river."

V. PFOA Exposure Poses Serious Health Risks to Plaintiff

75. PFOAs are well known to be dangerous toxins. Epidemiologic and laboratory studies have established that PFOAs can cause liver, pancreatic, kidney, uterine, and testicular cancer, as well as liver disease, early fetal delivery, low fetal weight, fetal skeletal deformations and birth defects.

76. Evidence about testicular cancer caused by PFOAs was first published in 1992.

77. In 2005, the EPA drafted a risk assessment regarding PFOA, which concluded that evidence suggested that PFOA exposure caused cancer in humans. In 2006, EPA's Science Advisory Board recommended that PFOA be considered "carcinogenic to humans," and the EPA called for the complete elimination of PFOA both from emissions and from product content by 2015.

78. On May 25, 2016, EPA promulgated a lifetime HAL of 70 ppt "based on peer-reviewed toxicological studies of exposure of animals to PFOA and PFOS, applying scientifically appropriate uncertainty factors. The development of the HALs was also informed by epidemiological studies of human populations that have been exposed to PFOA and PFOS. The HALs are set at levels that EPA concluded will not result in adverse developmental effects to fetuses during pregnancy or to breastfed infants, who are the groups most sensitive to the potential harmful effects of PFOA and PFOS. EPA's analysis indicates that exposure to these same levels will not result in adverse health effects (including cancer and noncancer) to the general population over a lifetime (or any shorter period) of exposure to these chemicals. EPA's HALs for PFOA and PFOS are supported by peer-reviewed health effects support documents that summarize and analyze available peer-reviewed studies on toxicokinetics, human epidemiology, animal toxicity, and provide a cancer classification and a dose response assessment for noncancer effects." 81 Fed. Reg. 33250, 33251 (May 25, 2016). The EPA stated, "When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from

adverse health effects resulting from exposure to PFOA and PFOS in drinking water." EPA Fact Sheet PFOA & PFOS Drinking Water Health Advisory (May 2016) (emphasis in original).

79. EPA's development of the hazard identification and dose-response assessment for PFOA has followed the general guidelines for risk assessment set forth by the National Research Council (1983) and EPA's *Framework for Human Health Risk Assessment to Inform Decision Making* (USEPA 2014a). Other EPA guidelines used in the development of this assessment include the following:

- *Guidelines for the Health Risk Assessment of Chemical Mixtures* (USEPA 1986a);
- *Guidelines for Mutagenicity Risk Assessment* (USEPA 1986b);
- *Recommendations for and Documentation of Biological Values for Use in Risk Assessment* (USEPA 1988);
- *Guidelines for Developmental Toxicity Risk Assessment* (USEPA 1991);
- *Interim Policy for Particle Size and Limit Concentration Issues in Inhalation Toxicity Studies* (USEPA 1994a);
- *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry* (USEPA 1994b);
- *Use of the Benchmark Dose Approach in Health Risk Assessment* (USEPA, 1995);
- *Guidelines for Reproductive Toxicity Risk Assessment* (USEPA 1996);
- *Guidelines for Neurotoxicity Risk Assessment* (USEPA 1998);
- *Science Policy Council Handbook: Peer Review (2nd edition)* (USEPA 2000a);
- *Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures* (USEPA 2000b);
- *A Review of the Reference Dose and Reference Concentration Processes* (USEPA 2002a);
- *Guidelines for Carcinogen Risk Assessment* (USEPA 2005a);

- *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (USEPA 2005b);
- *Science Policy Council Handbook: Peer Review (3rd edition)* (USEPA 2006a);
- *A Framework for Assessing Health Risks of Environmental Exposures to Children* (USEPA 2006b);
- *Exposure Factors Handbook* (USEPA 2011);
- *Benchmark Dose Technical Guidance Document* (USEPA 2012); and
- *Child-Specific Exposure Scenarios Examples* (USEPA 2014b).

U.S. Environmental Protection Agency, Office of Water (4304T), Health Effects Support Document for Perfluorooctanoic Acid (PFOA), EPA Document Number: 822-R-16-003 (May 2016).

80. The toxicity of PFOA and PFOS has been extensively studied not only by EPA and the U.S. National Toxicology Program, but also by DuPont over the last 20 years. Dupont's release of PFOA in a West Virginia community and the disastrous toxic consequences on the local population who drank PFOA-contaminated water is one the most studied and investigated PFOA health investigations ever conducted. Termed the "C8 Health Project," this investigation was created, authorized, and funded as part of the settlement agreement reached in the case of *Jack W. Leach, et al. v. E.I. du Pont de Nemours & Company*, No. 01-C-608 (W.Va., Wood County Circuit Court, April 10, 2002). That case was one of more than three thousand related lawsuits that DuPont and Chemours agreed to settle for $670.7 million in 2017.

81. The C8 Health Project provides further support for the dangerous health consequences of exposure to PFOAs. The project was one of the largest toxicology/epidemiology studies ever conducted with 69,030 residents who provided demographic data, medical diagnoses, clinical laboratory testing, and determination of serum

concentrations of 10 perfluorocarbons (PFCs). Three world-renowned epidemiologists (the C8 Science Panel) were appointed by the court to determine the presence or absence of what the court termed a "probable link" between PFOA exposure and human disease. The C8 Science Panel studied 55 health outcomes and, between 2011 and 2012, delivered four reports to the court concluding that PFOA was probably linked to six outcomes: kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, hypercholesterolemia, and pregnancy-induced hypertension.

82. In addition to PFOAs, PFOS, and GenX, Defendants have also caused Plaintiff and Class members to be exposed to Nafion. Nafion has also been demonstrated to have dangerous toxic properties. In a June 2015 article, "Hepatic Transcriptome Responses in Mice (Mus musculus) Exposed to the Nafion Membrane and Its Combustion Products," scientists at Nanjing University and the University of Georgia examined the biological impacts of Nafion and its breakdown products on the livers of male mice exposed to it for 24 days. The study found that Nafion and its breakdown products altered the molecular pathways and caused multiple impacts on cells and organs, including cellular proliferation, differentiation, and growth. The report correctly reported that the cellular impacts have "been implicated in several human diseases, such as inflammation and cancers." The study concluded, "Our data indicated that [Nafion] and its combustion products induce histopathological damage and oxidative stress in mouse livers during the experimental exposure . . . . This is the first toxicity study to simulate mouse exposure to [Nafion] and its combustion products via waste disposal processes, and these alarming results necessitate additional studies to evaluate the long-term toxic effects and elucidate the underlying cellular and molecular mechanisms of [Nafion] toxicity on living organisms."

83. Together, the chemical compounds DuPont discharged into the Cape Fear River over 45 years comprise a toxic cocktail with serious impacts to Plaintiff's and Class members' health, property, and lives.

VI. Sampling and Analysis of Plaintiff's Home

84. Plaintiff took samples at her residence for the presence of PFOAs, PFASs and GenX. The results of testing these samples demonstrate those concentrations of PFOAs, PFASs, or GenX, either in the past or the present, exceeded North Carolina's 140 ppt standard for GenX and/or the EPA's 70 ppt standard for PFOAs and PFASs.

VII. Remediation of Buildup of GenX and Nafion Wastes in Residential Plumbing Requires Plumbing and Fixture Replacement

A. PFOAs, Including GenX and Nafion, Bond With Proteins in Pipes and Fixtures

85. Scientific studies have consistently demonstrated that PFOAs such as GenX and Nafion wastes bond with the proteins in all living things, including of relevance in this case, biofilm attached to municipal and residential pipes, water heaters and fixtures.

86. Biofilm is comprised of dense colonies of plant and animal microbes and on many surfaces are impossible, or almost impossible, to remove. Biofilms are not a continuous monolayer surface deposit. Biofilms may form on a wide variety of surfaces, including industrial or potable water system piping, or natural aquatic systems. The attachment of microorganisms to surfaces is a very complex process, with many variables affecting adhesion. Minerals such as calcium carbonate, corrosion products such as iron oxides, and soil particles may often collect in biofilms of potable and industrial water systems, making them even more difficult to remove.

87. Biofilms are also rich in protein, in particular where cells adhere to surfaces, and on the surface of the cells themselves, which makes them an ideal target for PFASs, PFOAs, GenX and Nafion wastes.

88. However, although a biofilm as a whole adheres tenaciously to rough surfaces, individual microbes are continuously dying and breaking off from the matrix into the drinking water supply. The continuous and inexorable dying and detachment of cells releases PFASs, including PFOAs, GenX and Nafion wastes back into the drinking water supply.

89. PFASs, GenX and Nafion also exist in small stagnant pockets of water trapped in scale throughout homes' plumbing systems and can bond directly to the metal in pipes.

90. In addition to bonding with biofilm, PFASs, PFOAs and PFOS such as GenX and Nafion wastes can adsorp (*i.e.*, chemically bond) directly with iron and iron oxide. The PFASs, PFOAs and PFOS can then desorp depending upon a number of factors, including time and pH, back into the water supply.

91. PFASs, PFOAs, PFOS, GenX and Nafion wastes thus reside in bacteria, biofilm, scale, iron, and iron oxide in the bottom of water heaters, the nooks and crannies of rusted pipes, and valves, elbows, and water fixtures, among other locations. The pipes and fixtures thus act as a reservoir or sponge, continuously attracting and discharging GenX back into the water supply.

B. Remediation Can Only Be Accomplished By Replacing Pipes and Fixtures and Installing Filtration Systems

92. Currently, there is no known means to filter out of the water supply the chemical compounds discharged by Defendants. And even if drinking water utilities develop a filtering method, because the chemicals will continue to be released from the existing municipal piping downstream of the municipal water treatment plants, human health risks can only be mitigated

by installing a sophisticated water filtration system at the municipal piping and home water interface, and removing and replacing plumbing and appliances inside the homes.

93. Meanwhile, until these remedial actions are complete, to prevent the chemicals and wastes from further accumulating and harming residents, the residents will need to be supplied with bottled water for daily use.

CLASS ALLEGATIONS

94. Plaintiff requests certification pursuant to Fed. R. Civ. P 23(b)(2) on behalf of a proposed class defined as follows, seeking injunctive relief: all individuals and entities who from 1980 to the present have been or are exposed to GenX discharged from Fayetteville Works, or who live in New Hanover, Brunswick, Bladen, Cumberland, or Pender Counties and have been or are exposed to water drawn from the Cape Fear River.

95. Plaintiff requests certification pursuant to Fed. R. Civ. P 23(b)(3) on behalf of a proposed class defined as follows, seeking monetary damages: all individuals and entities who from 1980 to the present have been or are exposed to GenX discharged from Fayetteville Works, or who live in New Hanover, Brunswick, Bladen, Cumberland, or Pender Counties and have been or are exposed to water drawn from the Cape Fear River.

96. The Fed. R. Civ. P. 23(b)(2) class and Fed. R. Civ. P. 23(b)(3) class are collectively the "Classes" and their members are referred to as "Class members."

97. The number of Class members is sufficiently numerous to make class action status the most practical method for Plaintiff to secure redress for injuries sustained and to obtain class-wide equitable injunctive relief.

98. There are questions of law and fact raised by the named Plaintiff's claims common to those raised by the Classes she seeks to represent. Such common questions predominate over questions affecting only individual members of the Classes.

99. The violations of law and resulting harms alleged by the named Plaintiff are typical of the legal violations and harms suffered by all Class members.

100. As class representative, Plaintiff will fairly and adequately protect the interests of the Class members. Plaintiff's counsel are unaware of any conflicts of interest between the Class representative and absent Class members with respect to the matters at issue in this litigation; the Class representative will vigorously prosecute the suit on behalf of the Classes; and the Class representative is represented by experienced counsel. Plaintiff is represented by attorneys with substantial experience and expertise in complex and class action litigation involving personal and property damage.

101. Plaintiff's attorneys have identified and thoroughly investigated all claims in this action, and have committed sufficient resources to represent the Classes.

102. The maintenance of the action as a class action will be superior to other available methods of adjudication and will promote the convenient administration of justice. Moreover, the prosecution of separate actions by individual members of the Classes could result in inconsistent or varying adjudications with respect to individual members of the Classes and/or one or more of the Defendants.

103. Defendants have acted or failed to act on grounds generally applicable to Class members, necessitating declaratory and injunctive relief for the Classes.

104. In the alternative, Plaintiff seeks class certification as to particular issues as permitted under Fed. R. Civ. P. 23(c)(4). Plaintiff seeks certification as to the common questions

of the risks of the chemicals released by Defendants, and Defendants' liability for those releases. Plaintiff respectfully maintains that class certification as to these issues is appropriate because certification as to particular issues is superior to any alternative means of adjudication as it eliminates the possibility of duplicative, inefficient litigation of identical issues. Resolution of these matters would materially advance the litigation.

COUNT I: NEGLIGENCE
BY ALL PLAINTIFFS AGAINST DEFENDANTS

105. Plaintiff and the Class incorporate by reference the allegations set forth in all foregoing paragraphs, as if fully set forth herein.

106. Defendants owed Plaintiff and the Class a duty to exercise reasonable care.

107. As alleged herein, Defendants, individually and collectively, breached their duty of reasonable care by allowing contaminants to be released into the Cape Fear River and the drinking water of New Hanover, Brunswick, Bladen, Cumberland, and Pender Counties.

108. Upon learning of the release of the contaminants in 1980, the Defendants owed Plaintiff and the Class a duty to act reasonably to remediate, contain, and eliminate the contamination before it injured Plaintiff, the Class and their property and/or to act reasonably to minimize the damage to Plaintiff, the Class and their property.

109. Defendants breached that duty by failing to act reasonably in providing Plaintiff and the Class usable water. Furthermore, Defendants failed to take reasonable, adequate and sufficient steps or action to eliminate, correct, or remedy any contamination after it occurred.

110. Defendants further breached that duty by failing to timely notify Plaintiff and the Class of the contamination of the Cape Fear River and the drinking water of New Hanover, Brunswick, Bladen, Cumberland, and Pender Counties, and of the presence of contaminants in the homes, businesses and rental properties of Plaintiff and Class members.

111. As a result of Defendants' breaches of their duty to remediate the contamination, prevent the discharge of the contamination, and timely notify Plaintiff and the Class of the contamination, Plaintiff and the Class were forestalled from undertaking effective and immediate remedial measures, and Plaintiff and the Class have expended and/or will be forced to expend significant resources to test, monitor, and remediate the effects of the Defendants' negligence for many years into the future.

112. Defendants negligently breached their duties to Plaintiff and the Class to ensure that their water supply was safe and, consequently and proximately, the homes, businesses, and rental properties of Plaintiff and Class members have been damaged.

113. Defendants willfully and wantonly breached their legal duty to properly remediate the contamination despite full knowledge of the extent of the contamination and the threat it poses to human health, safety and property.

114. As a direct and proximate result of Defendants' negligence, Plaintiff and the Class have suffered and continue to suffer personal and property damage.

COUNT II: GROSS NEGLIGENCE
BY ALL PLAINTIFFS AGAINST DEFENDANTS

115. Plaintiff and the Class incorporate by reference the allegations set forth in all foregoing paragraphs, as if fully set forth herein.

116. Defendants owed Plaintiff and the Class a duty to exercise reasonable care. Upon learning of the release of the contaminants, Defendants owed Plaintiff and the Class a duty to act reasonably to remediate, contain, and eliminate the contamination before it injured Plaintiff, the Class and their property.

117. As alleged herein, Defendants, individually and collectively, caused drinking water with concentrations of GenX to be provided to Plaintiff and the Class in contravention of

drinking water standards. As such, Defendants, either with gross negligence, recklessly, willfully, wantonly, and/or intentionally contaminated the Cape Fear River and the drinking water of New Hanover, Brunswick, Bladen, Cumberland, and Pender Counties, and contaminated the homes, businesses and rental properties of Plaintiff and Class members.

118. Defendants owed Plaintiff and the Class a duty to act with reasonable care in undertaking their obligations. As more fully described herein, Defendants breached their duties of care by failing to notify residents of New Hanover, Brunswick, Bladen, Cumberland, and Pender Counties that their water was contaminated with GenX.

119. As a direct and proximate result of Defendants' gross negligence and willful and wanton conduct, Plaintiff and the Class have suffered and continue to suffer personal and property damage.

120. Defendants' conduct was so reckless as to demonstrate a substantial lack of concern for whether injury would result to Plaintiff or the Class.

COUNT III: PUBLIC AND PRIVATE NUISANCE: BY ALL PLAINTIFFS AGAINST DEFENDANTS

121. Plaintiff and the Class incorporate by reference the allegations set forth in all foregoing paragraphs, as if fully set forth herein.

122. Defendants' acts and omissions in discharging GenX into the water supply in and around the Cape Fear River caused and continue to cause a substantial and unreasonable interference with Plaintiff's and Class members' use and enjoyment of their properties and have materially diminished and continue to diminish the value of such properties.

123. As further detailed in the allegations herein, when Defendants discharged GenX into the water supply in and around the Cape Fear River, Defendants knew that the discharge would invade Plaintiff's and Class members' interests in the use and enjoyment of their lands

and properties. Additionally, Defendants' willful and wanton discharge of GenX into the water supply in and around the Cape Fear River was negligent and/or reckless.

124. Defendants' substantial and unreasonable interference with the use and enjoyment of Plaintiff's and Class members' properties and continuing substantial and unreasonable interference with such use and enjoyment constitutes a continuing private and public nuisance.

125. Defendants' creation and continuing creation of a continuing private and public nuisance proximately caused and continues to proximately cause substantial injuries to Plaintiff and Class members in the form of bodily injury and property damage for which Defendants are liable. The substantial injury to Plaintiff and Class members includes, but is not limited to, the costs to remove GenX from the water supply and the costs to remediate Plaintiff's and Class members' damages.

COUNT IV: TRESPASS
BY ALL PLAINTIFFS AGAINST DEFENDANTS

126. Plaintiff and Class members incorporate by reference the allegations set forth in all foregoing paragraphs, as if fully set forth herein.

127. Defendants' acts and omissions in willfully and wantonly discharging GenX into the water supply in and around the Cape Fear River have resulted and continue to result in the release and threatened release of toxic chemicals at, under, onto, and into Plaintiff's and Class members' bodies and properties.

128. The toxic chemicals present on Plaintiff's and Class members' properties and in their bodies originating at Fayetteville Works were at all relevant times hereto, and continue to be, the property of Defendants.

129. The invasion and presence of the toxic chemicals at, under, onto, and into Plaintiff's and Class members' properties and bodies was and continues to be without permission

or authority from Plaintiff, or any of the other Class members or anyone who could grant such permission or authority.

130. The presence and continuing presence of the toxic chemicals at Plaintiff's and Class members' properties and in their bodies constitutes a continuing trespass.

131. Defendants' past and continuing trespass and battery upon Plaintiff's and Class members' properties and bodies proximately caused and continues to proximately cause damage to Plaintiff and Class members in the form of bodily injury and property damage, for which Defendants are liable.

COUNT V: UNJUST ENRICHMENT BY ALL PLAINTIFFS AGAINST DEFENDANTS

132. Plaintiff and Class members incorporate by reference the allegations set forth in all foregoing paragraphs, as if fully set forth herein.

133. Defendants failed to incur expenditures to limit or prevent the release of GenX and other toxic PFASs, GenX and Nafion byproducts into the environment and prevent the contamination of Plaintiff's and Class members' properties and household water supplies for a minimum of 33 years, failed to incur the costs to timely investigate the impacts on Plaintiff and Class members and their properties, failed to incur the costs to timely mitigate the impacts on Plaintiff and Class members and their properties, and failed to incur costs to remediate the contaminated soil, dust and groundwater at Fayetteville Works. Defendants have been unjustly enriched by these and other failures to make expenditures to prevent the persons and properties of Plaintiff and Class members from being contaminated with PFASs, GenX and Nafion byproducts.

Defendants have received a measurable monetary benefit by failing to make the necessary expenditures. It would be unconscionable and contrary to equity for Defendants to retain that benefit. Defendants are therefore liable to Plaintiff and Class members.

PRAYER FOR RELIEF

Plaintiff requests the following relief from the court:

a. An order certifying a damages class pursuant to Fed. R. Civ. P 23(b)(3) and an injunctive relief class pursuant to Fed. R. Civ. P. 23(b)(2);

b. An injunctive order to remediate the harm caused by Defendants' conduct including, but not limited to: repairs of private property and establishment of medical monitoring to provide health care and other appropriate services to Class members for a period of time deemed appropriate by the Court;

c. An order for an award of compensatory damages;

d. An order for an award of punitive damages;

e. An order for equitable relief;

f. An order for pre-judgment and post-judgment interest;

g. An order for an award of reasonable attorneys' fees and litigation expenses; and

h. An order for all such other relief the court deems equitable.

DEMAND FOR TRIAL BY JURY

Plaintiff demands a trial by jury as to all those issues triable as of right.

Dated: October 23, 2017

Respectfully submitted,

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